

No. 2015-1825

**UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT**

GPNE CORP.,

Plaintiff-Appellant,

v.

APPLE INC.,

Defendant-Appellee.

Appeal from the United States District Court for the Northern District of
California, No. 5:12-cv-02885 (Judge Lucy H. Koh)

BRIEF FOR DEFENDANT-APPELLEE APPLE INC.

MARK D. SELWYN
WILMER CUTLER PICKERING
HALE AND DORR LLP
950 Page Mill Road
Palo Alto, CA 94304
(650) 858-6000

RUFFIN B. CORDELL
FISH & RICHARDSON P.C.
1425 K Street, NW Suite 1100
Washington, DC 20005
(207) 783-5070

December 18, 2015

LAUREN B. FLETCHER
JOSEPH J. MUELLER
DANA O. BURWELL
WILMER CUTLER PICKERING
HALE AND DORR LLP
60 State Street
Boston, MA 02109
(617) 526-6000

THOMAS G. SPRANKLING
WILMER CUTLER PICKERING
HALE AND DORR LLP
1875 Pennsylvania Avenue, N.W.
Washington, DC 20006
(202) 663-6000

*Attorneys for Defendant-Appellee
Apple Inc.*

Additional counsel listed on inside cover

CHRISTOPHER O. GREEN
FISH & RICHARDSON P.C.
1180 Peachtree Street, 21st Floor
Atlanta, GA 30309
(404) 892-5005

BENJAMIN C. ELACQUA
FISH & RICHARDSON P.C.
1221 McKinney St., Suite 2800
Houston, TX 77010
(713) 654-5300

Attorneys for Defendant-Appellee Apple Inc.

CERTIFICATE OF INTEREST

Counsel for Defendant-Appellee Apple Inc. certifies the following:

1. The full name of every party or *amicus* represented by us is:

Apple Inc.
2. The names of the real party in interest represented by us is:

Not applicable.
3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of the party or amicus curiae represented by me are:

None.
4. The names of all law firms and the partners or associates that appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this court are:

ALSTON HUNT FLOYD & ING: Louise K.Y. Ing, Malia E. Kakos

FISH & RICHARDSON PC: Ruffin B. Cordell, Enrique Duarte, Benjamin C. Elacqua, Rebecca C. Grant, Christopher O. Green, Kelly C. Hunsaker, Erin E. Kaiser, Aamir A. Kazi, Katherine K. Lutton, Brian G. Strand, Jacqueline Tio

WILMER CUTLER PICKERING HALE AND DORR LLP: Dana O. Burwell, Lauren B. Fletcher, Matthew J. Hawkinson, Joseph J. Mueller, Mark D. Selwyn, Thomas G. Sprankling

Dated: December 18, 2015

/s/ Lauren B. Fletcher

Lauren B. Fletcher

WILMER CUTLER PICKERING

HALE AND DORR LLP

60 State Street

Boston, MA 02109

(617) 526-6000

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STATEMENT OF RELATED CASES

Counsel for Apple are not aware of any case pending in this or any other court that will directly affect or be directly affected by this Court's decision in the pending appeal.

JURISDICTIONAL STATEMENT

The district court had jurisdiction under 28 U.S.C. §§ 1331, 1338. This Court has jurisdiction under 28 U.S.C. § 1295(a)(1).

INTRODUCTION

GPNE's patents, which resulted from more than a decade of prosecuting continuation patent applications, are directed to pagers used on a two-way paging system. They do not claim telephones or telephone systems. Nevertheless, GPNE accused Apple's popular iPhone and iPad products of infringement, based solely upon their compliance with certain industry standards for cellular telephone communications. After a seven-day trial, a jury rejected GPNE's allegations and found that Apple did not infringe any asserted claim. On appeal, GPNE identifies no basis for disturbing that verdict. Instead, GPNE advances arguments that the district court carefully considered and correctly rejected on multiple occasions, raises issues that have been waived, and asks this Court to reconsider factual issues that were properly decided by the jury. Each of GPNE's arguments should be rejected.

GPNE identifies no error in the district court's construction of the claim term "node" as a "pager with two-way data communications capability that transmits wireless data communications on a paging system that operates independently from a telephone network." A74-A75. The district court identified eleven separate reasons supporting this claim construction, including that the specification uses the words "pager" and "paging system" more than 200 times and describes "the invention" in precisely the manner that the court adopted. Additionally, the inventor's own statements regarding "the invention" made during prosecution, as well as the admissions of GPNE and its expert, confirm that the claimed "nodes" are limited to pagers on a paging system that operates independently from a telephone network.

Nor is there any merit to GPNE's argument, which arose only after the verdict against it, that the jury was improperly asked to resolve a dispute regarding claim scope. As the district court found, GPNE waived this argument by never asking for or proposing any further definition of the words "pager" and "paging system"—which appear in the district court's construction of the claim term "node" but are not claim terms themselves—at any point before or during trial. Moreover, the jury was properly instructed as to the court's claim construction and, based upon the evidence presented at trial, was entitled to find as a factual matter that Apple's accused devices were not "nodes" because they are not pagers and do

not work on paging systems that “operate[] independently” from a telephone network.

GPNE does not contest the noninfringement judgment under the district court’s claim construction of “node.” And, as the district court concluded, the jury had ample reason to find that Apple’s accused devices did not infringe on several other grounds as well. The judgment should be affirmed.

STATEMENT OF ISSUES

1. Whether the district court correctly construed the claim term “node,” where the specification and prosecution history make clear that the “nodes” of “the invention” are “pagers” on “a paging system that operates independently from a telephone network.”

2. Whether the district court correctly permitted the jury to decide whether Apple’s accused products were “pagers,” where GPNE never asked the court to construe the word “pager” (which is not a claim term) and the evidence demonstrated that Apple’s devices are not “pagers” as a factual matter.

3. Whether the district court correctly denied GPNE’s motion for judgment as a matter of law (“JMOL”) or a new trial, where GPNE does not challenge the noninfringement judgment under the district court’s construction of “node” and substantial evidence also supports the jury’s noninfringement verdict for three separate claim limitations.

STATEMENT OF CASE

A. The Parties

1. Apple

Apple is an innovative and successful technology company. A28809-A28812; A29192-A29193. Apple introduced its iconic smartphone, the iPhone, in 2007, and revolutionized the tablet computer with its introduction of the iPad in 2010. A28809-A28812. Apple has been awarded more than 1,600 patents based on its research in developing these products. A28812.

The accused devices are various models of Apple's iPhones and iPads. The functionality at issue in this case, however, is provided by a baseband processor supplied by Intel or Qualcomm. A28125. The baseband processor enables Apple's devices to send information, whether in the form of a phone call or text message, over telephone networks operated by network providers including AT&T, T-Mobile, and Verizon. A28903; A29020-A29021. These telephone networks transmit and receive information using industry-standard protocols known as General Packet Radio Service ("GPRS"), Enhanced Data rates for GSM Evolution ("EDGE"), and Long-Term Evolution ("LTE"). A3-A4; A28901-A28903.¹

¹ The EDGE protocol uses GPRS signaling, and the accused aspects of GPRS and EDGE are the same. A3 n.3; A28327. Accordingly, references to GPRS encompass EDGE.

2. GPNE

GPNE is, in its own words, a “licensing company based in Hawaii.” Br. 8. GPNE does not develop products based on its own patents and has never made or sold a product. A6808-A6809; A6900. According to its CEO, Edwin Wong, “GPNE’s business today is to license and enforce, through litigation, its patent portfolio” and “all of [GPNE’s] money comes from licensing and litigation.” A6899-A6900. Of GPNE’s four employees, “all ... function in a legal capacity”; “no one [is] doing engineering work.” A6899.

GPNE makes its money by sending form letters to hundreds of licensing targets ranging from farmers’ cooperatives to soda makers to insurance companies. A6932-A6934. The letter explains that GPNE will “discuss licensing terms at preferential rates for any prompt resolution that obviates costly legal entanglements.” A6932-A6934; A6937-A6938; *see also* A45648-A45649 (GPNE letter to Prairie Farms Dairy). Out of 300 letters sent, over 250 companies have declined to take a license from GPNE. A6942-A6943. And many of the companies that have taken a license merely paid a “lump sum, ... one-time only payment” of less than \$10,000. A6947-A6950; *see also* A29190; A29215.

All three standards evolved from a common ancestor that predates GPNE’s patents: the Global System for Mobile Communications (“GSM”). *E.g.*, A28251. It was undisputed that GSM is a telephone network. A28142; A28156; A29266.

B. The Patents-In-Suit

GPNE has prosecuted a family of more than a dozen continuation applications that all claim priority to U.S. Patent No. 5,542,115 (“the parent ’115 patent”), which was originally filed in 1994. A6810-A6811. The two patents asserted in this case—U.S. Patent Nos. 7,570,954 (“the ’954 patent”) and 7,792,492 (“the ’492 patent”)—were filed thirteen years later in 2007 and are now expired. A248; A273; A6889. As Gabriel Wong, one of the inventors, testified, he “didn’t invent the first paging system” or the first form of “two-way packetized data communication” or the first “cell telephone.” A6773-A6774; A6779; *see also* A6893. Instead, he and his business partner used existing methods “to create a two-way pager.” A6774-A6775.

The idea addressed a basic problem: Mr. Wong was concerned that his partner might “call [him] and [he] wouldn’t be at [his] desk. [T]he idea was that both [men] would have these two-way pagers and ... could immediately correspond with each other.” A6783. In other words, the invention was designed so that they would “not have to find a telephone to call [the other] back” if one received a page. A6786. Consistent with this testimony, the patents disclose a two-way paging system that operates independently from a telephone network.

1. The specification

The patents share the same specification, which provides that “[t]he invention pertains to communications paging, and particularly to two-way paging method and apparatus.” A263(1:36-38). The abstract states that “[a] communication system is provided for communication between network nodes and a communication controller.” A248. The rest of the specification repeatedly describes these “nodes” as pagers on a paging system, using the terms “pager” and “paging units” more than 200 times. A8.

The “Related Art” portion of the specification observes that “pagers” have become “important communications devices for contacting remotely situated personnel,” but have “historically been one-way systems.” A263(1:41-48). The specification criticizes one-way paging systems in which the user “ha[d] no way of responding” to messages from the control station, as well as prior art paging systems in which users could send only an acknowledgment in response to a message from the control station. A263(1:48-51, 1:60-2:3). The specification further notes “prior art attempts to provide two-way communications capabilities for a pager” that included “efforts to connect the pager to a telephone (e.g., to a mobile radio telephone).” A263(1:51-59).

In contrast to these prior art systems, the “Summary” portion of the specification describes the invention as a “two-way paging system” that uses “four

local frequencies for transmissions between pager units and a central control station.” A263(2:5-25). Two frequencies are used to transmit information from the control station to the paging unit (“downstream”), while the other two frequencies are used to transmit information from the paging unit to the control station (“upstream”). A263(2:5-25). Each disclosed embodiment describes “pagers” or “paging units” that communicate on a two-way “paging system.” *E.g.*, A263(2:19-21); A263(2:36-62); A264(3:6-8); A251(Fig. 2); A257(Fig. 8).

The specification nowhere describes the invention as a telephone system. Instead, it teaches that “the invention provides a two-way paging system which operates independently from a telephone system for wireless data communication between users.” A269(14:19-21). The specification also distinguishes pagers and messages received from pagers, on the one hand, from telephones and messages received from telephones, on the other. *E.g.*, A265(5:40-46); A252(Fig. 3).

2. The prosecution history

During prosecution of the parent ’115 patent, Gabriel Wong submitted a declaration to demonstrate conception of his disclosed invention. A651. In describing “the ... invention,” Mr. Wong stated:

The paging system used in the paging industry of today is a passive device in which a pager could only be paged and cannot return a page call without accessing the telephone system.

This disclosure depicts the design of *a two-way paging system* which *operates independently from the telephone system* for a wireless data communication between the users.

A657 (emphases added); *see also* A6786-A6787. Throughout the declaration, Mr. Wong referred to the invention as involving “pagers” that communicate with a central office on a “paging system.” A657-A683. He also contrasted pagers with cellular phones. *E.g.*, A666.

3. The asserted claims

GPNE asserted claim 44 of the '492 patent and claims 19 and 22 of the '954 patent. Each is directed to a first “node,” or paging unit, in a data network that includes a plurality of such nodes. Each “node” includes a processor, memory, and an interface, and can transmit and receive certain information to and from a control station. A270-A271; A298.

Each asserted claim requires “four differing frequencies,” two of which are used for transmitting information from the control station to the paging unit and two of which are used for transmitting information from the paging unit to the control station. A271(17:4-7); A298(21:44-53); *see also* A288(1:66-2:9). Each claim also recites an “aligning signal” or “clocking signal,” which contains timing information used for allocating resources. A270(16:59-62); A298(21:24-25); *see also* A109-A114. Additionally, claim 44 of the '492 patent and claim 19 of the '954 patent include a “count value,” which is a static number representing the total

number of data packets in a message and allows the receiving node to determine when the last packet in a transmission has been received. A271(17:32-36); A298(21:39-40); *see also* A265(5:35-39); A80-A84.

C. District Court Proceedings

GPNE filed this lawsuit in 2012 without any prior notice to Apple. A4; A6951-A6952. GPNE alleged that Apple's iPhones and iPads infringed solely because they are compatible with the industry-standard GPRS, EDGE, and LTE protocols. A3-A4; A28901-A28903. GPNE sought \$94 million in damages, more than twenty-five times the highest licensing fee it has ever received. A6816-A6817; A29228-A29929.

1. Claim construction

A central focus during *Markman* was the meaning of the claim term "node." *See* A1563-A1577. The district court construed the term to mean a "pager with two-way data communications capability that transmits wireless data communications on a paging system that operates independently from a telephone network." A74-A75; *see* A64. The court rejected GPNE's argument that "node" broadly encompasses any device that can "transmit and receive information," explaining that "the specification, prosecution history, and the testimony of GPNE's expert, Dr. Dinan, all support the conclusion that the node is a type of pager with two-way data communications capability," and that the term 'pager'

refers to a type of device that has qualities that distinguish it from other types of devices such as telephones.” A67; A71-A72. The court also concluded, based upon statements in the specification and prosecution history describing “the invention,” that a “node” “must have the capability to communicate on a paging system that is independent of the telephone system.” A74.

Neither side asked the district court to further define any of the words, such as “pager,” used within the district court’s construction of “node.” The court expressly asked whether it was necessary to have “a subsequent claim construction on that term.” A1569-A1570. Neither Apple nor GPNE took up that offer. A1570-A1577. Instead, in response to a follow-up question from the court asking that given how “pager is all over every single diagram, it’s throughout the entire specification, ... how can you walk away from paging system[?],” GPNE’s counsel conceded that “if you call it a paging system, a two way paging system ... that’s perfectly fine.” A1577 (internal quotation marks omitted); *see also* A12 (JMOL ruling noting that, at *Markman*, “GPNE failed to ... address or dispute Apple’s contention that whether the accused devices were ‘pagers’ was a factual dispute that did not go to the scope of the claims”).

GPNE never sought reconsideration of the “node” claim construction to, for example, further define the word “pager” as used within the court’s construction. A15. On the contrary, the district court later noted that GPNE “consistently tried

to avoid any limiting construction of ‘node’ in an effort to maintain as much breadth as possible in its claims.” A15-A16 (“As evidence of the breadth of this construction, GPNE acknowledged at trial that it sought licenses from ‘farms,’ ‘dairies,’ ‘insurance companies,’ ‘soda companies,’ ‘butter makers,’ ‘chocolate makers,’ ‘bakeries,’ ‘cell phone makers,’ and ‘trucking companies.’” (quoting A6931-A6833)).²

2. Summary judgment

Apple moved for summary judgment of noninfringement and invalidity. A4. The district court granted the motion in part, holding that Apple was not liable for indirect infringement and invalidating five claims from U.S. Patent No. 7,555,267 (“the ’267 patent”), which GPNE had initially also asserted against Apple. A4; A4121-A4142.³

The district court denied Apple’s request to find that Apple’s products could not be “nodes” as a matter of law. The court held that—viewing the evidence in the light most favorable to GPNE—there were factual disputes as to whether the accused devices were “pagers” and “communicate[d] on a paging system that is

² The district court also construed other terms that constitute independent claim limitations, including “count value” and “clocking signal.” See A114-A115; *infra* pp. 53-55.

³ Two weeks before trial, GPNE voluntarily abandoned its infringement claims based on the ’267 patent. A3 n.2.

independent of the telephone system.” A4127-A4128; A4130-A4131. Those factual questions were left “for resolution at trial.” A4130.

3. Trial

At trial, Apple presented testimony from its expert Dr. Katie Wilson showing that Apple’s accused products did not satisfy the “node” limitation. Dr. Wilson explained in detail that Apple’s devices are not pagers and that they transmit data on cellular telephone networks, not a paging system. *E.g.*, A28892 (“they’re designed to receive different types of signals, different types of protocols, different types of messages” and do not “work in the same frequency range”); A28872 (“different data rates and different qualities of service”); A28874 (“paging system[s] are designed and regulated [to] have a higher radiated power,” whereas “cellular systems are designed to have a lower power”); A28891 (devices on paging systems and cellular telephone networks are not “compatib[le]” because they have “different radios” and “different bandwidths”); A28894 (governed by “different standards body”); *see generally* A28855-A28901. Indeed, Dr. Wilson noted for the jury that—other than GPNE’s allegations in this case—she had never “heard anyone describe GPRS, EDGE, or LTE as a paging system protocol” despite her many years of experience in the field. A28901.

Dr. Wilson also emphasized that Apple’s devices use the GPRS and LTE protocols, which operate on telephone networks and therefore do not “operate[]

independently” from a telephone network. A28901 (“GPRS and EDGE are part of the GSM telephone standard, and LTE is a telephone standard.”); A28911 (“GPRS, EDGE, and LTE protocol[s] [are] dependent upon cellular telephone network components” and “if you take away the shared resources, they all fall down”); *see generally* A28900-A28931. Dr. Wilson further testified that the accused products did not satisfy several claim limitations independent of the “node” requirement, including “count value,” “aligning/clocking signal,” and “differing frequencies.” A28931-A28956.

Apple’s expert Mr. Peter Rysavy testified that, if the jury found that GPNE’s patents encompassed cell phones, then the asserted claims would be invalid as obvious in view of the GSM prior art—which, everyone agreed, was a telephone system. A29112; *see also* A29029; A29036-A29112; *supra* note 1.

GPNE presented its infringement case through its expert Dr. Esmael Dinan, who—unlike Dr. Wilson—was not a person of ordinary skill in the art at the time of the invention. A29368-A29369. Dr. Dinan testified that Apple’s accused devices infringed the asserted claims, even though he had not reviewed a single document or page of deposition testimony from Apple or the manufacturers of the baseband processors that performed the accused functionality (Qualcomm and Intel) because he refused to agree to the prosecution bar contained in the protective order. A28394-A28396. Instead, Dr. Dinan claimed that Apple’s accused devices

satisfied the court's claim construction for the "node" limitation based solely upon their compliance with the GPRS and LTE standards. A27971-A27973. He admitted, however, that a network using the GPRS and LTE protocols would "fall down" if the resources they shared with GSM—undisputedly a telephone system—were removed. A28417; *see also* A28413 (Dr. Dinan agreeing that "the GSM system is a telephone system").

During trial, GPNE never asked for any further explanation of the "node" claim construction, nor offered its own construction of "pager," "paging system," or any other words in the court's construction of "node." Instead, GPNE requested only that the court "instruct the jury to apply the 'plain and ordinary meaning to a person of skill in the art after reading the entire patent and file history' to the terms 'pager' and 'paging' system." A13-A14.

After a seven-day trial, the jury deliberated for less than five hours before finding that none of the accused Apple products infringed the asserted claims. A5.

4. Post-trial motions

The district court denied GPNE's motion for JMOL or, alternatively, a new trial. A2-A56; *see GPNE Corp. v. Apple Inc.*, __ F. Supp. 3d __, No. 12-cv-02885-LHK, 2015 WL 3629716 (N.D. Cal. June 9, 2015). The court rejected each point that GPNE now makes on appeal.

First, the district court explained in detail that its construction of “node” was correctly limited to two-way pagers. A8-A9. The court listed eleven separate reasons for this construction, including that “the term ‘pager’ is used over 200 times in each Asserted Patent,” “the Asserted Patents repeatedly refer to ‘the invention’ or ‘this invention’ as a ‘two-way paging’ system,” “the specification distinguishes pagers and cell phones,” and “at his deposition, Dr. Dinan ... testified that the patent claimed an ‘enhanced *pager*.’” A8-A9.

Second, the district court made clear that it had properly limited “nodes” to devices communicating “on a paging system that operates independently from a telephone network.” A9-A10. The court noted that GPNE conceded in its *Markman* briefing and at oral argument that the patents describe a device able to operate without a telephone network and that such a limitation was necessary to avoid overlapping with the prior art. A10 (citing A512; A1581).

Third, the district court rejected GPNE’s argument that the court violated *O2 Micro International Ltd. v. Beyond Innovation Technology Co.*, 521 F.3d 1351 (Fed. Cir. 2008), by supposedly leaving the scope of the word “pager” to the jury, A15-A19. The court found that GPNE waived the opportunity to request a construction of “pager” or “paging system”—which are not claim terms, but words used within the court’s construction of “node”—because it had never requested or proposed a definition of these words before or during trial. A11-A14; A16.

Moreover, *O2 Micro* was distinguishable because there the court refused to settle a dispute over two possible meanings of a claim term, but here the court “did construe the operative claim limitation: ‘node’.” A17-A18. The court also noted that GPNE’s complaints about the word “pager” did not go “to the scope of the claims, but to the application of the construed claims to the accused devices,” further rendering *O2 Micro* inapplicable. A19.

Finally, the district court explained that even if there had been any error related to the “pager” issue, the error would have been “harmless” because “the jury’s verdict of noninfringement could have been based on” a number of alternative grounds, including: (1) the jury’s reasonable determination that GPNE’s infringement expert “was not credible”⁴; (2) GPNE did not meet its burden to show that the accused products were on a system that “operate[d] independently from a telephone network”; and (3) GPNE’s failure to provide adequate proof on other independent claim limitations, including “count value,” “aligning/clocking signal,” and “differing frequencies.” A6; A33-A49.

⁴ As the district court explained, Dr. Dinan gave conclusory responses when presented with evidence that did not support his point of view, did not examine certain key confidential documents because he refused to sign a protective order, and conceded during cross-examination that “he was not a person of ordinary skill in the art at the time of the invention, but that Apple’s noninfringement expert ... was.” A33-A38.

Apple filed a conditional motion for JMOL on the ground that GPNE's patents are invalid as obvious, but asked the district court to address the motion only if it granted GPNE's motion for JMOL or a new trial. A3 n.1. The court denied Apple's conditional motion as moot without any substantive analysis. A3 n.1; A56.

SUMMARY OF ARGUMENT

The district court's judgment should be affirmed for three reasons:

1. The district court correctly construed the claim term "node" as a "pager with two-way data communications capability that transmits wireless data communications on a paging system that operates independently from a telephone network." A74-A75. The specification compels this construction by describing "the invention" as limited to two-way pagers on a paging system that operates independently from the telephone system, using the words "pager" and "paging system" more than 200 times in disclosing the invention, and describing every embodiment as involving pagers on a paging system. The inventor's own statements regarding "the invention," made during prosecution, confirm that the claimed "nodes" have those same attributes. And extrinsic evidence, including the admissions of GPNE's expert, support limiting the claimed "nodes" to pagers.

2. The district court did not err by not providing a further explanation of the words "pager" and "paging system," which appear in the court's construction

of “node” but are not themselves claim terms. As the district court found, GPNE waived any *O2 Micro* argument by never asking for or proposing any further definition of “pager” or “paging system” before or during trial. Moreover, the district court’s construction of “node” provided sufficient guidance to the jury as to the type of pager required, by indicating that the pager must be capable of “two-way” data communications and must be “on a paging system that operates independently from a telephone network.” The evidence at trial plainly demonstrated that Apple’s accused devices were not “nodes” and, as the district court found, this was a factual dispute that the jury was entitled to decide in Apple’s favor.

3. The district court correctly denied GPNE’s JMOL and new trial motions. GPNE does not challenge the noninfringement judgment under the district court’s construction of “node,” and Apple presented ample evidence showing that its accused devices are not “nodes” under that claim construction. Additionally, as the district court concluded, the jury had good reason to find GPNE’s infringement expert not credible and Apple presented substantial evidence demonstrating that its products did not include three separate claim limitations (“count value,” “aligning/clocking signal,” and “four differing frequencies”)—each of which suffices to support the noninfringement judgment.

STANDARD OF REVIEW

GPNE correctly states (at 16) the circumstances under which a trial court may grant a new trial, but omits the qualification that this Court “can reverse ... a denial [of a motion for a new trial] *only* if the [district] court makes a legal error in applying the standard for a new trial or the record contains *no evidence* that can support the verdict.” *Alford v. Haner*, 446 F.3d 935, 936 (9th Cir. 2006) (emphases added); *see also Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197, 1202 (Fed. Cir. 2010) (denial of new trial motion reviewed under regional circuit law). Accordingly, “[a]n appellate court generally will not reverse the denial of a new trial motion if there was some ‘reasonable basis’ for the jury’s verdict.” *Molski v. M.J. Cable, Inc.*, 481 F.3d 724, 729 (9th Cir. 2007).

This Court reviews a district court’s ruling that a party waived an argument for abuse of discretion. *Bettcher Indus., Inc. v. Bunzl USA, Inc.*, 661 F.3d 629, 640-641 (Fed. Cir. 2011). Relatedly, whether “supposed[ly] improper argument or testimony ... to which no objection was made” requires a new trial is reviewed under regional circuit law. *Function Media, L.L.C. v. Google, Inc.*, 708 F.3d 1310, 1327 (Fed. Cir. 2013). The Ninth Circuit reviews for “plain error,” meaning that there must be “an error” that was “obvious” and “affected substantial rights.” *C.B. v. City of Sonora*, 769 F.3d 1005, 1016-1019 & n.6 (9th Cir. 2014) (en banc). Reversal for plain error is appropriate “only where the integrity or fundamental

fairness of the proceedings in the trial court is called into serious question.” *Swinton v. Potomac Corp.*, 270 F.3d 794, 816 (9th Cir. 2001) (internal quotation marks omitted).

Apple otherwise agrees with GPNE’s standards of review.

ARGUMENT

I. THE DISTRICT COURT CORRECTLY CONSTRUED THE CLAIM TERM “NODE.”

The district court correctly construed the term “node,” which appears in each asserted claim, as a “pager with two-way data communications capability that transmits wireless data communications on a paging system that operates independently from a telephone network.” A74-A75. This construction is compelled by the specification and the inventor’s statements during prosecution, both of which describe “the invention” using the language adopted by the district court, and is further supported by extrinsic evidence and GPNE’s own admissions. Indeed, the district court identified eleven separate reasons, spanning both intrinsic and extrinsic evidence, as support for its construction. A8-A9.⁵

By contrast, GPNE’s proposed construction—that a “node” is simply a “device in a [data] network that can transmit and receive information” (Br. 17)—

⁵ GPNE characterizes the district court’s construction as one that “neither party proposed” (Br. 17), but it is largely the construction that Apple proposed. In response to *GPNE’s* arguments, the district court added to Apple’s proposal that the pager has “two-way data communications capability” to clarify the type of “pager” described and claimed in the patent. A68-A69.

gives no meaning to the term “node” as used in the claims, and would improperly “expand the scope of the claims far beyond anything described in the specification.” *Kinetic Concepts, Inc. v. Blue Sky Med. Group, Inc.*, 554 F.3d 1010, 1019 (Fed. Cir. 2009). The district court’s construction should be affirmed.

A. The District Court Correctly Required A “Node” To Be A Pager.

GPNE first contends that the district court’s construction of “node” should not have included the word “pager” because “[t]he claim language itself makes no reference to either a pager or paging system.” Br. 20. But as GPNE acknowledges, the generic term “node” should be narrowed if there is “support in the specification.” Br. 21. Here, there is abundant support in the specification, confirmed by the prosecution history and extrinsic evidence, demonstrating that a “node” is a pager and not simply a device in a network in the context of the claimed invention.

1. The specification makes clear that a “node” is a pager.

“[T]he specification unequivocally compels” a limitation where it “repeatedly and consistently” describes the claimed system in accordance with that limitation. *Eon-Net LP v. Flagstar Bancorp*, 653 F.3d 1314, 1321-1323 (Fed. Cir. 2011). Here, the entirety of the specification describes the “nodes” claimed in the asserted patents as pagers. In fact, the specification uses the words “pager” and “paging

unit” over 200 times, including to describe “the invention” and every disclosed embodiment.

The “Technical Field” portion of the specification states that “[t]he *invention* pertains to communications paging, and particularly to two-way paging method and apparatus.” A263(1:37-39) (emphasis added). The “Summary” similarly describes the invention as “[a] two-way paging system” that transmits information between a central control station and “pager units.” A263(2:7-25). And the “Detailed Description” indicates that “*the invention* provides a two-way paging system which operates independently from a telephone system for wireless data communication between users.” *E.g.*, A269(14:19-21) (emphasis added); *see also* A269(14:33-37). These statements characterizing “the invention” provide strong evidence that the claimed “nodes” are pagers. *See Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1308 (Fed. Cir. 2007) (“When a patent thus describes the features of the ‘present invention’ as a whole, this description limits the scope of the invention.”); *Accentra, Inc. v. Staples, Inc.*, 500 F. App’x 922, 926 (Fed. Cir. 2013) (surveying this Court’s precedent and concluding that “[o]ur cases” follow the *Verizon* rule).

The “Related Art” section of the specification also indicates that the claimed “nodes” are limited to pagers. This section discusses paging systems that were known in the prior art and criticizes, for example, one-way paging systems that did

not allow users to respond to messages, as well as paging systems that provided only an acknowledgment in response to a paging signal. A263(1:40-2:3). This portion thus describes a desire for an improved pager system and, consistent with the rest of the specification, makes clear that the context of the claimed invention is limited to a paging system in which the “nodes” are pagers. *See, e.g., Powell v. Home Depot U.S.A., Inc.*, 663 F.3d 1221, 1233 (Fed. Cir. 2011) (affirming construction as consistent with description of related art); *VirnetX, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308, 1318 (Fed. Cir. 2014) (including limitation where “the Background and Summary of the Invention clearly identify [the limitation] as a key part of the novel solution to the specific problem identified in the prior art”).

The “Detailed Description” portion of the specification repeatedly and consistently describes the claimed “nodes” as pagers. As GPNE concedes (at 23-24), every “preferred” embodiment—and, in fact, every embodiment—refers to the nodes as “pagers” or “paging units” in a paging system. *E.g.*, A264-A268(3:6-11:8) (describing node 22 and node 422 as “pager units” or “pagers” in first embodiment); A268-A269(11:10-14:18) (describing node P1 and node 422 as “pagers” or “pager units” in second embodiment). The figures depict the same. *E.g.*, A263(2:39-41) (“FIG. 2 is a schematic view of a pager unit included in a paging system”); A263(2:54-56) (same for Figure 8); A250-A260(Figs. 1-11) (referring to “pagers” in paging system). The specification’s uniform description

of the invention as involving pagers in a paging system overwhelmingly demonstrates that the claimed “nodes” are pagers. *See, e.g., Saffran v. Johnson & Johnson Co.*, 712 F.3d 549, 560 (Fed. Cir. 2013) (“Extensive, consistent usage in the specification therefore suggests that the claimed ‘device’ should be understood as a sheet, which ... accord[s] with every embodiment and description presented in the ’760 patent, not to mention the prosecution history.”); *Eon-Net*, 653 F.3d at 1321-1323 (construction of “document” as “hard copy document” was supported by repetition of “hard-copy document” over 100 times in specification).

Even the portions of the specification cited by GPNE describe the claimed “nodes” as “pagers” or “paging units.” *See* Br. 23-24 (citing A293-A294(11:6-22, 13:39-49, 14:41-49); A276(Fig. 2); A282(Fig. 8); A283(Fig. 9)). GPNE seeks to downplay this fact by arguing that, although the devices are described as “pagers,” they “in substance ... function more like minicomputers than pagers.” Br. 24. But regardless whether these devices may include additional features like graphics displays and image decoders, the specification unequivocally—and uniformly—describes them as “pagers” that operate in a paging system.

At bottom, the specification contains no description of a “node” that is anything other than a pager. Construing “node” as a pager is thus faithful to this Court’s emphasis on “understand[ing] the claim term ‘after reading the entire patent.’” *ICU Med., Inc. v. Alaris Med. Sys., Inc.*, 558 F.3d 1368, 1375 (Fed. Cir.

2009) (quoting *Phillips v. AWH Corp.*, 415 F.3d 1303, 1321 (Fed. Cir. 2005) (en banc)); *see also id.* (construing “spike” as pointed because “[t]he specification never suggests that the spike can be anything other than pointed”); *Poly-Am., L.P. v. GSE Lining Tech., Inc.*, 383 F.3d 1303, 1310 (Fed. Cir. 2004) (construing claims to include a limitation where the specification was “replete with references” to the limitation).⁶

2. The prosecution history, including the inventor’s own statements, confirms that a “node” is a pager.

Mr. Wong’s declaration submitted to the Patent Office during prosecution confirms that the proper construction of “node” includes a “pager” on a “paging system.” In describing “the ... invention” (A657), Mr. Wong stated:

The paging system used in the paging industry of today is a passive device in which a pager could only be paged and cannot return a page call without accessing the telephone system.

This disclosure depicts the design of *a two-way paging system* which operates independently from the telephone system for a wireless data communication between the users.

⁶ GPNE argues (at 20) that limitations should not be “imported” from the specification, but cites only cases that did not involve extensive specification references to the limitation. *See CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1369 (Fed. Cir. 2002) (“nothing in the intrinsic evidence here describes a single-component, straight-bar ‘member’ as important to the invention”); *Lucent Techs., Inc. v. Gateway, Inc.*, 525 F.3d 1200, 1206-1210 (Fed. Cir. 2008) (proposed limitation was in conflict with Summary of the Invention and Detailed Description); *Sjolund v. Musland*, 847 F.2d 1573, 1581-1582 (Fed. Cir. 1988) (pre-*Phillips* case merely reciting “the general principle [] that limitations from the specification are not to be read into the claims”).

A657 (emphasis added); *see also* A657-A683 (same declaration referring to “pagers,” “paging,” and “paging system” over 100 times in describing invention).

GPNE acknowledges that Mr. Wong’s declaration “identif[ied] the features of the claimed system” (Br. 25) and does not dispute that he repeatedly described his invention as using pagers on a paging system. *See* Br. 25-27. GPNE nevertheless contends—without citation—that “[Mr.] Wong described more than just a legacy pager and even more than two-way pagers” and that “[his] invention called for a revolutionary way of transmitting packetized data messages using a mobile device on a cellular network by allocating resources in an efficient way.” Br. 26. But nothing in Mr. Wong’s declaration describes the invention as directed to “a mobile device on a cellular network.” *See* A657-A683. On the contrary, Mr. Wong expressly described “the ... invention” as using pagers on “a two-way paging system” and further contrasted the claimed pagers with cellular phones, which were known at the time. A657; *see, e.g.*, A666 (“The size of a pager can be made smaller than a cellular phone”).

By discussing the problems with prior paging systems and describing “the ... invention” as “a two-way paging system” in which “pagers” transmit and receive information, Mr. Wong unequivocally told the public that the claimed invention was a pager in a paging system. *See* A6786-A6787 (Mr. Wong acknowledging that he told the Patent Office that his patents differed from the prior

art because they provide “a two-way paging system which operates independently from a telephone system for wireless data communication between users”). The district court was therefore correct to rely on Mr. Wong’s declaration as intrinsic support for limiting the claimed “nodes” to pagers. A69; *see Fenner Inv., Ltd. v. Cellco P’Ship*, 778 F.3d 1320, 1323 (Fed. Cir. 2015) (“Any explanation, elaboration, or qualification presented by the inventor during patent examination is relevant, for the role of claim construction is to ‘capture the scope of the actual invention’ that is disclosed, described, and patented.”); *see also Phillips*, 415 F.3d at 1317 (“[L]ike the specification, the prosecution history was created by the patentee in attempting to explain and obtain the patent.”).

3. Extrinsic evidence further supports that a “node” is a pager.

As the district court found, GPNE’s expert testimony also supports that the “node” claimed in the patents “is a type of pager” and “not simply ... a device in a network.” A70-A71. Dr. Dinan repeatedly referred to the claimed device as an “enhanced pager” or “pager-type apparatus” while contrasting it with both “legacy pagers” and “mobile telephones.” A884-A887; A627. Dr. Dinan also testified that a person of ordinary skill in the art in the relevant timeframe would not “refer to mobile telephones as pagers” and that “1993/1994 era pager[s]” differed from “mobile phone[s] from that same time.” A886; A885. And Dr. Dinan agreed that the patent specification does not disclose “circuitry ... for processing or

transmitting telephone signals” in its description of the pager devices, or “the software or firmware needed to process telephone signals.” A885-A886.

GPNE does not deny that Dr. Dinan described the claimed devices as “pagers,” but criticizes the district court for not construing “node” to require “an enhanced pager.” Br. 28-29. The district court’s construction did, however, include the characteristic that the specification taught distinguished the claimed device from prior art pagers—namely, that it is a “two-way” pager. A68-A69; *see also* A263(1:40-2:3) (describing drawbacks of “one-way” and acknowledgment-only (“ack-back”) paging systems in the prior art). This construction is directly supported by Dr. Dinan’s testimony, as the district court found, and GPNE identifies no clear error in those findings. *See Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015).⁷

B. The District Court Correctly Included “Operates Independently From A Telephone Network” In Its Construction Of “Node.”

GPNE also asserts that the district court erred by including the phrase “operates independently of a telephone network” in its construction of “node” “based entirely on a single summation sentence in the specification.” Br. 29-30.

⁷ Citing Dr. Dinan’s declaration, GPNE contends that the Patent Office equated “node” with “handheld devices ... not limited to legacy ‘pager devices.’” Br. 29 (citing A627-A628). But the examiner only rejected pending claims as obvious over prior art. And, in fact, the examiner rejected the same pending claims of the ’954 patent as “not patentably distinct” from the parent ’115 patent, which the examiner found “also claims a method of operating a ... two[-way] paging system[]” with “a plurality of nodes including a first node (pager).” A1115.

But the district court’s inclusion of this phrase was neither incorrect nor based upon a single sentence. Rather, as the district court explained (A9-A10; A72-A74), the totality of the evidence—including the specification, the inventor’s statements during prosecution, the testimony of GPNE’s own expert, and GPNE’s concessions during *Markman*—demonstrates that the “nodes” of the claimed invention communicate on a paging system that operates independently from a telephone network.

To begin with, the specification does not merely mention paging systems and telephone systems separately. It expressly states that “*the invention* provides a two-way paging system which *operates independently* from a telephone system for wireless data communication between users.” A269(14:19-21) (emphases added); *see also* A265(5:40-46) (distinguishing “pager messages” from “telephone messages”). As discussed above (at 23), such statements describing “the invention as a whole ... support a limiting definition of a claim term.” *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 864 (Fed. Cir. 2004).

Consistent with the specification’s description, the inventor emphasized the “operates independently” feature in his declaration submitted to the Patent Office. In describing “*the following invention*,” Mr. Wong stated: “This disclosure depicts the design of a two-way paging system which *operates independently* from the telephone system for a wireless data communication between the users.” A657

(emphases added). Mr. Wong further described as a “[f]eature of the system” that “[i]t can *operate independently* from the existing telephone system to return a page call.” A666 (emphasis added); *see also* A657. Dr. Dinan, in his expert declaration describing Mr. Wong’s statement from the prosecution history, acknowledged: “The quote above does not state that the ‘node’ operates independently from telephony, but that *the ‘two-way paging system’ does.*” A628-A629 (emphasis added). Dr. Dinan also testified at his deposition—as summarized by the district court—that “pager networks and telephone networks are distinct and ... the electronic componentry and programming that permits a device to communicate on each is generally different.” A74 (citing A886-A887).⁸

Moreover, when construing “node,” the district court observed that “GPNE does not appear to dispute that the device must have the capability of operating independently of the telephone network.” A72 (citing A511). And, indeed, as the district court found (A10), GPNE conceded that the paging system of the invention must be able to operate independently from the telephone system. *See* A512 (GPNE claim construction brief stating that “the two-way data communication

⁸ *Hill-Rom Services Inc. v. Stryker Corp.*, 755 F.3d 1367 (Fed. Cir. 2014), cited by GPNE (at 31-32), is thus inapposite. There, the Court declined to construe the claims to require the wired datalink in the preferred embodiment, where “[n]othing in the specification or prosecution history ma[de] clear that the invention is limited to use of a cable as a datalink.” *Id.* at 1372-1373. Here, by contrast, the specification and prosecution history expressly describe the “operates independently” limitation as a feature of “the invention.” A269(14:19-21); A657.

system *of the invention* ... can operate ... independent from the telephone network” (emphasis added)); A1581:16-18 (GPNE’s counsel confirming that the patents “depict[] the design of a two way paging system which operates independently from the telephone systems for wireless”); *see also* A1352 (GPNE claim construction brief stating that the “two-way” device disclosed in the patents “can obviate the need for telephony voice calls,” which “was necessary for one-way pagers of the time”).

GPNE contends that the evidence and statements discussed above “did not preclude a device used to transmit data from *also* handling calls on a phone network.” Br. 30 (emphasis added). But neither did the district court’s construction. In fact, the district court rejected Apple’s proposed construction “to the extent [Apple] seek[s] to limit the ‘node’ to devices which do not have the capability of operating on a telephone network.” A74. Instead, the court explained that, “while the claimed node could operate on both a telephone [network] and [a] pager network, the node must operate on a pager network that is independent of a telephone network.” A9; *see also* A10 (district court noting that it “permitted GPNE to argue that a combination pager-telephone device infringed the claims, if the accused device met the independent networks limitation”). That is precisely what the inventors disclosed as a feature of their invention in the specification and

prosecution history, and what GPNE's own expert made clear in his declaration (A628-A629). *See supra* pp. 30-31.

GPNE also argues—without citation—that the patents use a “packet-switching” system as opposed to a “circuit-switching” system and that, by distinguishing between the two, “GPNE did not ... suggest that the packet-switched network itself must be entirely ‘independent’ of a circuit-switched telephone network and share no equipment or technology.” Br. 31. But regardless whether the different systems are packet-switched or circuit-switched, the many statements discussed above make clear that the paging system used by the claimed invention operates independently from a telephone network, as the district court concluded. The patent's “references to telephone equipment” (Br. 31) do not detract from this conclusion; they reinforce it by contrasting the paging system used by the claimed devices with a separate telephone system. *E.g.*, A252(Fig. 3) (distinguishing between “message from phone” and “phone system,” and “message from pager”); A265(5:40-46) (same); A269(14:19-21) (“Thus, the invention provides a two-way paging system which operates independently from a telephone system for wireless data communication between users.”); *see also* A628-A629 (Dr. Dinan stating that “[t]he [preceding quote] does not state that the ‘node’ operates independently from telephony, but that the ‘two-way paging system’ does”).

C. Claim Differentiation Does Not Support GPNE's Argument.

Finally, GPNE argues that because the parent '115 patent includes claims that use the terms “pager” and “paging system,” those terms must be narrower than “node.” Br. 32-34. GPNE raised this claim differentiation argument for the first time in its *post-trial* JMOL motion, and the district court ruled that it was therefore waived. A15. That was not an abuse of discretion. *See Interactive Gift Express, Inc. v. Compuserve Inc.*, 256 F.3d 1323, 1347-1348 (Fed. Cir. 2001) (new arguments that “narrow []or broaden” a claim construction may be waived).

GPNE's argument also fails on the merits. Claim differentiation refers to a presumption, not a rule, that “different words or phrases used in separate claims ... indicate that the claims have different meanings and scope.” *Seachange Int'l, Inc. v. C-COR Inc.*, 413 F.3d 1361, 1368 (Fed. Cir. 2005) (internal quotation marks omitted); *see Marine Polymer Techs., Inc. v. HemCon, Inc.*, 672 F.3d 1350, 1359 (Fed. Cir. 2012) (en banc) (“[C]laim differentiation is ‘not a hard and fast rule and will be overcome by a contrary construction dictated by the written description or prosecution history.’”). But here, construing “node” to be a “pager” does not result in any claims having the same scope. Rather, the asserted claims are already different in scope when compared to the claims of the parent '115 patent (and other related patents) because they include *other* limitations not found in those patents. *Compare* A271 ('954 patent, claims 19 & 22) (requiring, for example, transmission

of “information relating to a total number of related ones of the multiple data packets” and “randomly generated information created by the first node”), *and* A298 (’492 patent, claim 44) (requiring, for example, “a random access request signal”), *with* A779-A780 (’115 parent patent), A802-A803 (related ’827 patent), and A826 (related ’520 patent).

The cases cited by GPNE (at 32-34) are easily distinguishable. *D.M.I., Inc. v. Deere & Co.*, 755 F.2d 1570, 1574 (Fed. Cir. 1985), involved a district court’s error in reading a dependent claim’s limitation into the independent claim from which it depended. And *Comark Communications, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998), applied the doctrine to avoid rendering a dependent claim “completely superfluous and redundant” of the independent claim from which it depended. Here, by contrast, GPNE presents no dependent versus independent claim comparison, and does not contend that interpreting a “node” as a “pager” renders any claims superfluous. *See* Br. 33. Instead, the claims and the specification use the terms “node” and “pager” (or “paging unit”) interchangeably.

GPNE’s reliance (at 32) on *Omega Engineering, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1334 (Fed. Cir. 2003), for the proposition that “the *same* claim term in ... related patents carries the same construed meaning” is misplaced because GPNE’s argument applies to the use of *different* claim terms (i.e., “node” and “pager” or “paging unit”). This Court has made clear that “simply noting the

difference in the use of claim language,” which is all that GPNE does (at 32-34), “does not end the matter.” *Nystrom v. TREX Co.*, 424 F.3d 1136, 1143 (Fed. Cir. 2005). “Different terms or phrases in separate claims may be construed to cover the same subject matter where,” as here, “the written description and prosecution history indicate that such a reading of the terms or phrases is proper.” *Id.* Thus, even if GPNE’s claim differentiation argument had any merit, it cannot “trump the clear import of the specification,” which makes clear that a “node” is a “pager.” *See Edwards Lifesciences, LLC v. Cook Inc.*, 582 F.3d 1322, 1331 (Fed. Cir. 2009).⁹

II. THE DISTRICT COURT CORRECTLY PERMITTED THE JURY TO DECIDE THE FACTUAL ISSUE OF WHETHER APPLE’S PRODUCTS ARE “PAGERS.”

GPNE contends that the district court erred by allowing the jury to resolve a dispute over the meaning of the scope of the claims. Br. 38. It did not. The court provided the jury with its construction for the claim term “node,” and GPNE never requested any further construction for the words “pager” and “paging system” appearing within that construction. GPNE’s *O2 Micro* argument is therefore waived, as the district court found. Further, whether Apple’s products are “pagers”

⁹ GPNE also asserts that the district court “held that GPNE’s proposed construction of ‘node’ was waived because GPNE failed to seek reconsideration of the court’s claim construction order.” Br. 37. Not so. The court noted that GPNE had not moved for reconsideration (A15-A16), but still rejected GPNE’s proposed construction for “node” on the merits. A8-A10; A64-A75; *see also* A15 (finding GPNE’s “node” claim construction argument “not waived” and “not persuasive”).

on “a paging system that operates independently from a telephone system” was a factual question that the jury was entitled to—and did—decide in Apple’s favor. GPNE has presented no basis for disturbing the jury’s noninfringement verdict, which should be affirmed.

A. GPNE Waived Its *O2 Micro* Argument By Failing To Request A Construction Of The Words “Pager” And “Paging System” At Any Point Before Or During Trial.

This Court has made clear that it is well within a district court’s discretion to hold that failure to request a claim construction of a particular term precludes later raising the issue. *See Bettcher*, 661 F.3d at 640-641; *see also Lazare Kaplan Int’l, Inc. v. Photocopy Techs., Inc.*, 628 F.3d 1359 (Fed. Cir. 2010).¹⁰ Here, the district court correctly found—and certainly did not abuse its discretion in finding—that GPNE waived any argument that the court should have provided a further construction of the word “pager” for the jury. A11-A14.

Although GPNE now complains that the district court erred “[b]y just using the term ‘pager’ in the construction of node, without any further explanation as to what that term meant” (Br. 41-42), GPNE did not ask the court to provide the jury with any further explanation at any point before or during trial. Instead, GPNE argued at *Markman* that the claim term “node” should not be limited to “pagers” at

¹⁰ Contrary to GPNE’s assertion (at 35), this Court has “h[e]ld that Federal Circuit law controls waiver in the context of claim construction arguments.” *Harris Corp. v. Ericsson Inc.*, 417 F.3d 1241, 1250-1251 (Fed. Cir. 2005).

all. *See supra* p. 10. And in its filings proposing and objecting to jury instructions, GPNE either accepted the court’s construction of “node” and asked that the jury be instructed to apply the plain and ordinary meaning of “pager,” or requested that the court adopt GPNE’s proposed construction which did not include the word “pager.” A13 (citing A26273-A26277). GPNE *never* sought or proposed a construction for “pager” or “paging system” and *never* asked the court to instruct the jury as to the meaning of those words. *See* A27319 (GPNE acknowledging in post-trial briefing that it never sought a construction of “pager” or “paging system”). Thus, as the district court found, “GPNE’s arguments suggesting that the Court should have construed ‘pager’ [or] ‘paging system’ ... were waived as GPNE never requested construction of those terms.” A11.

GPNE nonetheless argues (at 38, 52) that the issue was preserved because it objected “at multiple times” to the district court’s failure to specify the scope of the word “pager.” But the record shows otherwise. GPNE identifies two places where it claims to have raised this issue during *Markman*. First, GPNE points (at 38, 52) to a single passage in its 23-page *Markman* brief noting that using “pager” in Apple’s proposed construction of “node” “only begs the question of what a ‘pager’ is or does in the context of the asserted claims.” A510. Second, it identifies (at 39) two fleeting statements from the *Markman* hearing. *E.g.*, A1568 (GPNE’s counsel stating, “And then we get into the definition of, what is a pager? If an

iPhone can be used to contact somebody, is that a page? I don't know."); A1553 (GPNE's counsel referring to "whatever we decide a pager is").

As these statements indicate, GPNE raised only a passing concern over the potential ambiguity of the word "pager" as a way of trying to convince the district court to adopt *its* proposed construction for "node" (which did not use the word "pager") over Apple's (which did). This type of argument cannot be enough to require claim construction of the word "pager"—otherwise, a trial court would be required to construe every claim limitation and every phrase used within each side's proposed construction so long as a litigant argued in passing that the terms might be ambiguous. *See O2 Micro*, 512 F.3d at 1362 ("[D]istrict courts are not ... required to construe *every* limitation present in a patent's asserted claims."). Further, *after* GPNE's counsel made these remarks, the district court expressly asked whether the word "pager" would need to be construed and GPNE did not "address or dispute Apple's contention that whether the accused devices were 'pagers' ... did not go to the scope of the claims.'" A12. Instead, "GPNE told the [c]ourt that 'if you call it a "[two-way] paging system,'" that would be 'perfectly fine.'" A12 (quoting A1577).

GPNE also maintains that it "raised the issue promptly" in three filings concerning jury instructions during the second week of trial. Br. 53. But even then, GPNE neither requested that "pager" be construed nor objected to the

proposed instruction informing the jury that “[t]he [c]ourt *has not construed* the terms ‘pager’ or ‘paging system.’” *See* A7128-A7129 (emphasis added); *see also* A26273; A26595. Instead, GPNE merely asked the court to tell the jury that it “should apply [the] plain and ordinary meaning [of ‘pager’ and ‘paging system’] to a person of skill in the art after reading the entire patent and file history.” *E.g.*, A7128. The court ultimately delivered an analogous instruction, telling the jury that “[f]or claim language where I have not provided you with any meaning, the claim language’s plain and ordinary meaning ... applies.” A26689.

With no satisfactory explanation for its failure to raise the “pager” issue, GPNE argues (at 51) that an *O2 Micro* argument “c[an]not” be waived. However, this Court found waiver in *Bettcher* even though the appellant raised an *O2 Micro* claim on appeal. 661 F.3d at 640-641; *accord Lazare*, 628 F.3d at 1376. And GPNE’s inaction in this case is more egregious than in *Bettcher*, where the litigant waited until “the eve of trial” to propose a new claim construction. 661 F.3d at 640-641. Here, as the district court explained, GPNE never proposed a construction of “pager” before or during trial. A12-A14; *see Lazare*, 628 F.3d at 1376 (finding waiver because, “[u]nlike *O2 Micro* where the appellant presented its claim construction argument ... during a *Markman* hearing, *Lazare* first asserted the claim construction it presses on appeal in a post-trial motion”); *Broadcom Corp. v. Qualcomm Inc.*, 543 F.3d 683, 694 (Fed. Cir. 2008) (“Unlike in *O2 Micro*

... Qualcomm here has failed to offer its proposed construction of ‘networks’ at or prior to trial, and we reject such arguments raised for the first time after the jury verdict.”); *see generally Enovsys LLC v. Nextel Commc’ns, Inc.*, 614 F.3d 1333, 1344 n.6 (Fed. Cir. 2010) (explaining that waiver applies “when the party failed to raise the claim construction argument until after trial,” and collecting cases).

GPNE’s cited cases (at 51-54) do not support its position. In *CytoLogix Corp. v. Ventana Medical Systems, Inc.*, 424 F.3d 1168, 1172 (Fed. Cir. 2005), there was no waiver by failing to raise a claim construction issue because “the parties agreed, contrary to the district court’s wishes, not to have a *Markman* hearing and ... the claims were not construed until the close of evidence.” In the other cases, “the claim construction [wa]s resolved pre-trial” because one or both parties asked the court to construe the disputed term. *See Cardiac Pacemakers, Inc. v. St. Jude Med., Inc.*, 381 F.3d 1371, 1380-1381 (Fed. Cir. 2004) (claim construction resulted from “a hearing at which all parties’ positions were presented [and] fully litigated”).¹¹ Similarly, here, the district court found no waiver with

¹¹ *See also CollegeNet, Inc. v. ApplyYourself, Inc.*, 418 F.3d 1225, 1235 (Fed. Cir. 2005) (“[T]he district court[’s *Markman* ruling] rejected ApplyYourself’s proposed construction.”); *Ecolab, Inc. v. Paraclipse, Inc.*, 285 F.3d 1362, 1369 (Fed. Cir. 2002) (“Ecolab fully briefed its position concerning the proper construction of [the disputed term] at the *Markman* hearing. The district court rejected that interpretation ... in its *Markman* Order.”); *Lighting Ballast Control LLC v. Philips Elecs. N. Am. Corp.*, 790 F.3d 1329, 1337 (Fed. Cir. 2015) (“ULT made its claim construction position clear to the court and the court rejected it.”).

respect to the claim construction argument that GPNE actually made (i.e., that “node” should not be limited to “pagers”). A8-A10; A64-A75. The court properly found waiver as to the argument that GPNE did not make (i.e., that the jury should have been further told what the word “pager” means). A11-A14.¹²

B. The District Court Provided The Jury With Sufficient Guidance As To The Types Of “Pagers” Included In Its Construction Of “Node.”

Even if GPNE had not waived the “pager” issue, there still was no error in which terms were construed for the jury. Unlike *O2 Micro International Ltd. v. Beyond Innovation Technology Co.*, 521 F.3d 1351, 1362, 1365 (Fed. Cir. 2008), where the district court refused to settle a dispute over two possible meanings of a claim term (“only if”), the district court here “did construe the operative claim limitation: ‘node.’” A17-A18. And while GPNE complains that the court should have provided further guidance as to the meaning of words within that construction, GPNE still does not propose how “pager” or “paging system” should have been defined for the jury, other than to offer a collection of vague assertions that “pager” should not have been limited to “legacy pagers.” *See* Br. 41-42. But the district court’s construction *did* provide context as to the type of “pager” and

¹² GPNE improperly criticizes (at 54) the district court for citing *Hewlett-Packard Co. v. Mustek Systems, Inc.*, 340 F.3d 1314, 1320-1321 (Fed. Cir. 2003). GPNE concedes that the *Hewlett-Packard* Court found waiver where a party attempted to “reserve issues of claim construction for the stage of post-trial motions.” Br. 54 (citing 340 F.3d at 1320). That is precisely what happened here.

“paging system” covered by the patents, and was entirely consistent with the statements made by the district court that GPNE cites (Br. 39-40). *See* A18-A19.

In particular, the district court’s claim construction stated that a “node” is not just any “pager” but one “with two-way communications capability.” A69; A74-A75. The court expressly included this limitation, which GPNE does not challenge (*see* Br. 17-38), because “the specification makes clear that the claimed invention is distinguishable from prior art pagers in that the claimed devices are capable of two-way communications.” A68. Additionally, the court’s construction specified that a “node” (or “pager”) is part of a “paging system” that “operates independently from a telephone network.” A74-A75. This, too, provided the jury with an explanation as to the type of “pager” and “paging system” required. GPNE’s complaint (at 41-42) that the district court “just us[ed] the term ‘pager’ in the construction of node” thus rings hollow.

GPNE also takes issue (at 39-40) with the fact that the district court’s claim construction did not expressly inform the jury that a “node” (or “pager”) could include the capability of operating on a telephone network. But there was no reason to do so. Whether a “pager” included that *additional* capability was neither required nor prohibited by the patent, and nothing in the court’s construction precluded a “node” (or “pager”) from being capable of operating on a telephone system in addition to a paging system. *See* A74-A75. Moreover, the court

permitted GPNE to argue that Apple's products, which undisputedly operate on a telephone system, also operate on a paging system. A9. That the jury rejected that argument as a factual matter does not show any error or ambiguity in the court's claim construction.¹³

C. Whether Apple's Products Are "Pagers" On A "Paging System" Was A Factual Question That The Jury Was Entitled To—And Did—Decide In Apple's Favor.

GPNE next asserts that "[b]ecause the issue of whether the iPhones and iPads were 'pagers' so permeated the trial, the judgment must be reversed." Br. 50.¹⁴ But as GPNE acknowledges, whether "the claim as properly construed reads on the accused product" is "a fact question for the jury." Br. 17-18 (citing *ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*, 694 F.3d 1312, 1319 (Fed. Cir. 2012)). Indeed, the district court observed that GPNE did not dispute at *Markman* that "whether the accused devices are 'pagers' is a 'fact-based issue'" and that "'pager' can be defined by the rest of the [court's] construction of 'node'."

¹³ This case is also unlike *Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1313 (Fed. Cir. 2003), where the jury was not instructed as to whether "the claim require[d] sequential performance of the steps." Here, the jury was expressly told that the claimed "node" required "two-way data communications" capability and transmitting information on a paging system that "operates independently from a telephone system." A29393.

¹⁴ Even if the district court had erred on the "pager" issue (though it did not), that would not result in "reversal" of the judgment. As explained below (at 52-60), any error would be harmless because several other grounds support the jury's verdict and, at most, would lead to a new trial.

A4127; *see also* A1573 (Apple’s counsel: “It becomes a fact-based issue, Your Honor, yes.”); A1577 (GPNE’s counsel: “[I]f you call it ... ‘a two-way paging system’ ... that’s perfectly fine.”). And in opposing Apple’s summary judgment motion, GPNE argued—and the district court accepted (A4130)—that the parties’ opposing expert opinions regarding whether Apple’s accused devices were “nodes” presented “a genuine issue of material fact in dispute” for the jury to decide. A2758.

Despite its pre-trial stance, GPNE points to a number of transcript excerpts to suggest that the entire trial was about the scope of the word “pager.” *See* Br. 42-48. Notably, GPNE did not object to these statements at trial. Any alleged error is therefore subject to the “highly deferential plain or fundamental error standard of review, where [the court] will reverse only where the integrity or fundamental fairness of the proceedings in the trial court is called into serious question.” *Swinton*, 270 F.3d at 816 (internal quotation marks omitted); *see also United States v. Socony-Vacuum Oil Co.*, 310 U.S. 150, 238-239 (1940) (counsel “cannot as a rule remain silent, interpose no objections, and after a verdict has been returned seize for the first time on the point that the comments to the jury were improper and prejudicial”). GPNE cannot meet that high burden here.

As discussed below, the parties presented testimony and evidence disputing whether Apple’s accused devices were “nodes,” including whether they were

“pagers” on a “paging system that operates independently from a telephone network.” As the district court found, Apple’s trial presentation properly contrasted the accused devices and the telephone networks on which they operate with pagers and paging systems, and “GPNE’s suggestion that Apple limited pagers to ‘one-way legacy beepers’ [wa]s not supported by the record.” A22.¹⁵

For example, during his opening statement, Apple’s counsel repeatedly emphasized that Apple’s devices did not infringe because they did not meet the court’s construction of “node”:

So fundamentally what you’re going to be asked to do in this case is to decide whether an iPhone fits this definition. Is it a pager with two-way data communications capability that transmits wireless data communications on a paging system that operates independently from a telephone network?

A6689:15-19; *see also* A6688:2-19; A6689:20-25; A6690:9-10; A6694:20-A6695:3; A6699:7-24; A6702:7-12; A6704:22-A6705:14; A6711:1-4. Apple’s counsel explained that Apple’s devices “don’t work with a paging system” and instead work on “telephone networks” like AT&T, T-Mobile, and Verizon. A6705:9-14. And he provided examples of how Apple’s devices and the telephone networks on which they operate are different from “pagers” and “paging

¹⁵ In fact, Dr. Dinan admitted that the Motorola device that GPNE refers to (at 42) was a “two-way pager” and “transmit[ted] wireless data communications on a paging system that operates independently from a telephone network.” A28116:23-A28117:5; A28118:25-A28119:3. GPNE also did not object to its admission into evidence. A28118:2-5.

systems”—for example, by using different frequencies, different data rates, and different power signals. A6705:15-A6710:3. Those examples properly illustrated the factual differences, and in no way contradicted or narrowed the court’s claim construction.

Apple’s expert Dr. Wilson then presented her noninfringement opinion by appropriately comparing Apple’s iPhones and iPads with the court’s construction of “node.” A28869:16-A28871:4. She explained in detail why Apple’s devices were not “pagers,” focusing primarily on the differences between the telephone networks on which Apple’s devices operate, on the one hand, and paging systems, on the other:

[T]hey have different protocols, they have different modes of operation, they have different data rates, different bandwidths, different ways of operating, and there’s times when I’d want a pager and times when I’d definitely want a cell phone. But they aren’t interchangeable.

A28899-A28900; *see also* A28855-A28900. Dr. Wilson also emphasized that Apple’s devices use the GPRS and LTE protocols, which operate on telephone networks and therefore do not “operate[] independently” from a telephone network. A28900-A28931; *see supra* pp. 13-14.

Although it did not object at trial, GPNE now asserts (at 44-45) that Dr. Wilson impermissibly redefined the word “pager” by referring to characteristics such as “high-power, low-data transmissions via simulcasting.” Dr. Wilson,

however, described various pager characteristics to help explain how and why Apple's devices operate differently from pagers. *E.g.*, A28891:25-A28892:15 (“[T]hey’re totally different animals. They’re designed to receive different types of signals, different types of protocols, different types of messages. So even if you put the radio from [a pager] into [an iPhone or iPad], it still couldn’t decode it. The bandwidth would be wrong. The protocol is wrong.”); *see also* A28887-A28898; A45289-A45341; A45342-A45385 (FCC and ETSI documents supporting that “paging systems” are distinguishable from cellular telephone systems for a number of reasons, including “long battery life,” “higher radiated power,” use of “simulcasting,” and “smaller size”). Whether the accused devices possessed those characteristics is an appropriate question for the jury, and fully consistent with the district court’s construction of “node.” *See* A70 (district court stating that “Dr. Dinan’s testimony also supports the conclusion that the term ‘pager’ connotes a type of device that has characteristics or qualities that distinguish it from other devices such as telephones”).

GPNE also takes issue (at 45-46) with Dr. Wilson’s testimony regarding Mr. Wong’s declaration from the prosecution history, even though GPNE did not object at trial. A28854 (GPNE’s counsel during Dr. Wilson’s direct testimony: “If he’s moving into evidence the entire file history, there’s no objection to that.”). It was entirely appropriate for Dr. Wilson to point to statements from the prosecution

history where the inventor described characteristics of “pagers” and “paging systems” and contrasted them with cellular phones and telephone networks. *See* A28854-A28865. This evidence helped illustrate differences relevant to infringement, including GPNE’s theory of infringement under the doctrine of equivalents (A29483), as understood by a person of ordinary skill in the art at the time of the invention—precisely the standard that GPNE advocated below. A7128 (GPNE arguing that the jury should apply “pager” as understood by an ordinarily skilled artisan after reading the prosecution history); *see Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546, 1552 (Fed. Cir. 1989) (approving of reliance on “prosecution history and testimony” directed to absence of limitations, or their equivalents, from accused devices); *see also Frolov v. Wilson Sporting Goods Co.*, 710 F.3d 1303, 1309-1310 (Fed. Cir. 2013) (“extrajudicial admissions of facts” are “relevant evidence” that “may be countered by the party that made the admission” in consideration of “the issue of infringement”).

Neither Apple nor its expert gave the word “pager” “a broader scope” for invalidity than for infringement, as GPNE incorrectly contends (at 46-47). Mr. Rysavy testified—again, without objection—that it was his opinion that the asserted claims were valid, but that they would be invalid if they were “stretched” to cover cell phones because that would encompass the GSM prior art. A29112-A29113; *see also* A29488 (Apple’s closing statement: “If they will stick to the

fact that they have patented a pager, then the patent is valid.”). This argument did not ask the jury to construe the claims or to “stretch” them; it simply reminded the jury to be consistent in applying the claims to both the accused devices and the prior art. A20; see *Peters v. Active Mfg. Co.*, 129 U.S. 530, 537 (1889) (“That which infringes, if later, would anticipate, if earlier.”).

In a footnote, GPNE suggests (at 44-45 n.6) that other testimony regarding the term “pager” was somehow improper. It was not, and GPNE did not object to the questioning of Mr. Dansky (A28670-A28672) or move to strike the answer of Mr. Casanova, whose cited testimony occurred during GPNE’s cross-examination (A28805-A28806). Further, both Mr. Wong the inventor and Mr. Wong the CEO had written statements that contrasted the features of “pagers” and “paging systems” with cellular phones and cellular systems. Apple appropriately questioned them about those statements, which were relevant to infringement. A6793-A6794 (questioning regarding Mr. Wong’s declaration submitted to the Patent Office); A6904-A6912 (questioning regarding Mr. Wong’s business plan, which he agreed “distinguish[ed] pagers and paging systems from cell phones and cellular systems”); A45222 (business plan emphasizing “definitive gap between two way paging and cellular phone communications”).

Ultimately, that the jury decided the infringement issue in Apple’s favor does not turn a factual dispute about whether the accused products were “nodes” or

“pagers” into a legal dispute about claim scope. *See Lazare*, 628 F.3d at 1376 (“[T]he parties’ dispute concerns factual questions relating to the test for infringement and not the legal inquiry of the appropriate scope of the [relevant] limitation.”); *Finjan*, 626 F.3d at 1207 (“Restating a previously settled argument does not create an ‘actual dispute regarding the proper scope of the claims’ within the meaning of *O2 Micro*. In this situation, the district court was not obligated to provide additional guidance to the jury.”).

III. THE DISTRICT COURT CORRECTLY DENIED GPNE’S MOTIONS FOR JMOL AND A NEW TRIAL.

A. GPNE Does Not Challenge The Noninfringement Judgment Under The District Court’s Construction Of “Node.”

The district court was correct to deny GPNE’s JMOL and new trial motions. As an initial matter, GPNE does not challenge the jury’s noninfringement verdict under the district court’s construction of “node.” *See* Br. 55-58. Nor could it. As discussed above (at 13-14, 46-49), Apple presented extensive evidence showing that its accused products are not “pagers” and that they work on networks using the GPRS and LTE protocols (the alleged “paging” systems), which do not “operate[] independently” from the GSM telephone network. *E.g.*, A28906-A28907 (Apple’s expert explaining how the GPRS and LTE networks cannot work without the GSM network); A28417 (GPNE’s expert conceding that the GPRS network would “fall down” if the GSM resources were removed); A28362; A28427 (GPNE’s expert

admitting that the tests he relied upon in his infringement analysis confirmed that the GPRS network used GSM signals). Thus, if the district court's construction of "node" is upheld, the noninfringement judgment should likewise be affirmed.¹⁶

B. The Jury Implicitly Found That Apple's Products Did Not Meet Several Other Limitations Of The Asserted Claims.

Even if GPNE could identify an error in the district court's construction of "node" or alleged failure to further construe "pager" (and it cannot), there was ample evidence for the jury to find noninfringement on a number of alternative grounds. *See Eaton Corp. v. Rockwell Int'l Corp.*, 323 F.3d 1332, 1334 (Fed. Cir. 2003) (party alleging claim construction error "must show ... that the error was prejudicial" to warrant a new trial). Specifically, as the district court concluded, Apple presented substantial evidence that its products "did not infringe based on the following limitations: ... 'count value'; 'aligning/clocking signal'; and 'differing frequencies.'" A33; *see also* A38-A48.¹⁷

¹⁶ If this Court reverses the "node" construction, GPNE's patents are invalid as obvious over the GSM prior art. A29112; *see also* A29029; A29036-A29112. Apple filed a conditional motion for JMOL on this point, which the district court denied as moot following its noninfringement ruling. A3 n.1. Should this Court reverse the "node" construction or otherwise remand the case, any new trial on infringement should also include obviousness. *See Gasoline Prods. Co. v. Champlin Refining Co.*, 283 U.S. 494, 500-501 (1931) (partial new trial prohibited "unless it clearly appears that the issue to be retried is so distinct and separable from the others that a trial of it alone may be had without injustice").

¹⁷ The district court also observed that the jury had good reason to find GPNE's infringement expert "not credible." A33-A38; *see supra* p. 17 & n.4.

GPNE’s cursory arguments to the contrary (at 55-58) are unavailing and fail to grapple with much of the district court’s reasoning. They also largely ignore that GPNE must show not simply that it presented *some* evidence supporting its position but that (1) “no reasonable jury” could have found in Apple’s favor in order for GPNE to be entitled to JMOL (Br. 16), or (2) the district court abused its discretion in denying a new trial because “the record contains no evidence in support of the verdict” (*see supra* p. 20). GPNE does not meet these high standards. Accordingly, because “even if the district court erred in its construction of [“node”], the result the jury reached—the finding of non-infringement—would not change,” the judgment should be affirmed. *See SSL Servs., LLC v. Citrix Sys., Inc.*, 769 F.3d 1073, 1084-1085 (Fed. Cir. 2014).

1. Apple presented substantial evidence that the accused devices did not meet the “count value” limitation.

The term “count value” appears in claim 44 of the ’492 patent and claim 19 of the ’954 patent, and was construed to mean “the number of consecutively related packets emanating from a transmitter.” A43. While Apple’s products include a “GPRS countdown” function, Apple presented substantial evidence that this is neither a “count value” nor even information related to a “count value.” A43.

As the district court explained, the “count value” in the asserted claims is “a static number representing the total number of packets in a message.” A44 (citing

A28954). By contrast, Apple's expert Dr. Wilson testified that the GPRS countdown function in Apple's products merely indicates when the transmission is done. A43-A44; *see also* A44 (the countdown is essentially "a flag that indicates when transmission of a message is complete"). As the district court summarized, Dr. Wilson illustrated the distinction between a "count value" and a countdown value "by describing a message containing 7 blocks of data: using a count value would result in the number 7 being included with each packet of data, but with a GPRS countdown, the first several packets would include the number 15, until the transmission hit a preset threshold of 5 blocks remaining, and then each packet of data would include the dynamic number of blocks remaining, e.g., 5, 4, 3, 2, 1." A44 (citing A28953-A28954).

GPNE's sole response (at 56-57) is that the claim limitation is met by the GPRS countdown because the limitation merely requires transmission of "information relating to a count value." But contrary to GPNE's assertion (at 57) that this point is undisputed, GPNE's argument was expressly refuted by Apple in the JMOL briefing and rejected by the district court. *See* A27290; A44-A45. While a countdown value is calculated using information related to the total number of packets, that is just one parameter of a complex formula and the countdown value does not *transmit* information related to the count value. A44 (citing A28955). Indeed, Dr. Wilson testified that it is "impossible" to determine

the total number of packets from the output of the calculation that sets the countdown value. A28955; *see also* A44. Relying on this evidence, the district court properly held that because the “count value” limitation requires “the *total* number of packets in a transmission be transmitted to the receiver,” the jury reasonably could have found that the GPRS countdown in Apple’s products is not a “count value” as required by the claims. A44-A45 (emphasis added).

2. Apple presented substantial evidence that the accused devices did not meet the “aligning/clocking signal” limitation.

The term “clocking signal” or “aligning signal” appears in all three asserted claims and was construed to mean “a signal that, among other things, contains timing information used for allocating resources.” A45; *see also* A61 n.2.

The district court correctly concluded that Apple presented “substantial evidence to support a jury verdict of noninfringement as to the clocking/aligning signal limitation.” A46. For the LTE devices, the court explained that GPNE’s arguments for why Apple’s products infringed relied *entirely* on its own expert’s testimony and failed to rebut Dr. Wilson’s testimony that the LTE devices did not satisfy this claim limitation. A46. In particular, Dr. Wilson explained that the LTE signals (1) were incapable of performing the function of allocating resources required under the limitation, and (2) required different hardware and consumed wider bandwidth than the aligning/clocking signal. A28948-A28950. GPNE’s

brief makes *no* attempt to respond to this holding (*see* Br. 57), and thus effectively concedes that Apple’s LTE devices do not infringe its patents.¹⁸

For the GPRS devices, the district court rejected GPNE’s argument that the clocking/aligning signal limitation was satisfied by the fact that the Apple products receive a GSM synchronization burst (also known as a “GSM SCH burst”). A46. The court’s holding rested on two grounds. First, GPNE conceded during a February 2013 reexamination of the ’492 patent that a GSM synchronization burst is distinct from a clocking/aligning burst. A45-A46; *see also* A28946 (Dr. Wilson testifying that “GPNE t[old] the patent office that a GSM SCH burst is not the same thing as an aligning signal”); A5354; A5359 (GPNE counsel agreeing that it was “fine ... to let in all of the PTO’s statements and all of the patent owner’s statements” on this point). Second, Dr. Wilson testified that the GSM synchronization burst is a telephone signal and thus does not satisfy the limitation. A46; *see also* A28940.

GPNE’s brief has *no* response to the fact that it conceded before the Patent Office that a GSM SCH burst, as used in Apple’s products, does not meet the clocking/aligning signal claim limitation. *See* Br. 57. Accordingly, there was

¹⁸ GPNE cannot cure this defect—or any of the other issues discussed *infra* it has failed to dispute—in its reply brief. *See, e.g., Zango, Inc. v. Kaspersky Lab, Inc.*, 568 F.3d 1169, 1177 n.8 (9th Cir. 2009) (“[A]rguments not raised by a party in an opening brief are waived.”); *SmithKline Beecham Corp. v. Apotex Corp.*, 439 F.3d 1312, 1319 (Fed. Cir. 2006) (same).

substantial evidence in the record, unrefuted by GPNE, to show that Apple's GPRS products do not meet this claim limitation and thus do not infringe.

3. Apple presented substantial evidence that the accused devices did not meet the “differing frequencies” limitation.

The “four differing frequencies” requirement appears in all three asserted claims. A28932. While “differing frequencies” was not construed, the parties agreed that a “frequency” is a “number expressed in hertz.” A47 & n.13. As the district court explained, the patent specification describes “four local frequencies for transmissions between pager units and a central control station”; it indicates that two frequencies transmit information from the control station to the pager and two transmit from the pager to the control station, all of which allows for “two-way data communication.” A47-A48 (citing A288(1:66-2:9)).

The district court rightly held that there was substantial evidence to support the jury's implicit finding that Apple's products did not meet the “differing frequencies” limitation. A49. *First*, for the accused GPRS devices, the court found that GPNE waived any argument that Apple did not present sufficient evidence to support a noninfringement finding on this claim limitation by failing to raise this argument in its opening JMOL brief (and raising it only cursorily in its reply brief). A48 & n.14. This reason standing alone is sufficient to uphold the district court's ruling. *See Stauffer v. Brooks Bros. Group, Inc.*, 758 F.3d 1314, 1322 (Fed. Cir. 2014) (“The record shows that Mr. Stauffer ... waited until his

reply brief before the district court to first raise th[e issues]. Issues not properly raised before the district court are waived on appeal.”); *accord Doi v. Halekulani Corp.*, 276 F.3d 1131, 1140 (9th Cir. 2002).

GPNE concedes (at 57 n.9) that it did not raise the issue in its opening JMOL brief. Its only explanation, in a footnote, is that it was not required to do so because “at trial, Apple failed to offer any evidence the frequency limitation for the GPRS devices entirely [sic].” *Id.* However, even if true (it is not), it would not relieve GPNE of its obligation to affirmatively raise the issue in its opening brief. Moreover, GPNE is wrong—Dr. Wilson testified that *none* of Apple’s products meets the “differing frequencies” limitation. *See, e.g.*, A28936-A28937 (Dr. Wilson explaining how the GPNE patent’s four frequencies work and then testifying that “this is [not] how GPRS, EDGE, and LTE work”); *see also* A28932-A28935; A28938.

Second, for the accused LTE devices, the district court correctly found that Dr. Wilson had “testified that the four differing frequencies limitation appeared in each claim asserted” and that “rather than transmitting four discrete signals over four different frequencies, LTE sends several signals, simultaneously over 72 frequencies.” A47 (citing A28931-A28938); *see also* A48124; A48129. As the court explained, Dr. Wilson distinguished the Apple LTE products on three independent grounds: (1) they used more than four frequencies, (2) they could be

transmitted simultaneously, and (3) they permitted “frequency hopping” (i.e., “allow[ing] two or more signals to transmit in the same frequency.” A49 (citing A28935-A23938).

GPNE’s brief (at 57-58) does not even address two of the three reasons the district court and Dr. Wilson relied upon to explain why Apple’s LTE products do not meet the “differing frequencies” requirement. Instead, GPNE argues (at 57-58) that the district court held that Dr. Wilson could treat the “differing frequencies” requirement in claim 22 as coextensive with claim 44 solely “because Dr. Dinan supposedly did so.” That is not what happened. Rather, the court correctly found that Dr. Wilson testified that her analysis of claim 44 also applied to claim 22. A48; *see also* A28931-A28932 (Dr. Wilson discussing a “sample claim [claim 44] that has th[e] four differing frequencies requirement” and agreeing that there is a “similar limitation in all of the other GPNE claims that were asserted”).¹⁹ The court referenced Dr. Dinan’s testimony only to demonstrate that he failed to explain why “the ‘differing frequencies’ limitation in each claim would not also be treated ... the same.” A48.

GPNE also casually asserts that claim 22 requires showing only that signals were sent on a minimum of four frequencies. *See* Br. 57 (“Dr. Wilson’s testimony

¹⁹ Moreover, as the district court pointed out, both claims 22 and 44 are dependent on claims that use the term “differing frequencies.” A48.

confirmed that the signals were sent on up to 72 differing frequencies, which is all that Claim 22 ... required.”). But this point was rejected by the district court as a new argument raised for the first time in GPNE’s JMOL motion and one that was ultimately irrelevant because Dr. Wilson’s testimony distinguished Apple’s LTE products on the additional grounds that they allowed for “simultaneous transmission and frequency hopping.” A49 (citing A28935-A28938).

* * *

Accordingly, because there was substantial evidence supporting Apple’s position that its products did not satisfy three claim limitations *in addition to* “node,” any purported error in the district court’s claim construction would have been harmless. *See SSL*, 769 F.3d at 1084-1085.

CONCLUSION

The noninfringement judgment should be affirmed.

Respectfully submitted,

/s/ Lauren B. Fletcher

LAUREN B. FLETCHER
JOSEPH J. MUELLER
DANA O. BURWELL
WILMER CUTLER PICKERING
HALE AND DORR LLP
60 State Street
Boston, MA 02109
(617) 526-6000

MARK D. SELWYN
WILMER CUTLER PICKERING
HALE AND DORR LLP
950 Page Mill Road
Palo Alto, CA 94304
(650) 858-6000

THOMAS G. SPRANKLING
WILMER CUTLER PICKERING
HALE AND DORR LLP
1875 Pennsylvania Avenue, N.W.
Washington, DC 20006
(202) 663-6000

RUFFIN B. CORDELL
FISH & RICHARDSON P.C.
1425 K Street, NW Suite 1100
Washington, DC 20005
(207) 783-5070

CHRISTOPHER O. GREEN
FISH & RICHARDSON P.C.
1180 Peachtree Street, 21st Floor
Atlanta, GA 30309
(404) 892-5005

BENJAMIN C. ELACQUA
FISH & RICHARDSON P.C.
1221 McKinney St., Suite 2800
Houston, TX 77010
(713) 654-5300

December 18, 2015

*Attorneys for Defendant-Appellee
Apple Inc.*

CERTIFICATE OF SERVICE

I hereby certify that, on this 18th day of December, 2015 I filed the foregoing Brief for Defendant-Appellee Apple Inc. with the Clerk of the United States Court of Appeals for the Federal Circuit via the CM/ECF system, which will send notice of such filing to all registered CM/ECF users.

/s/ Lauren B. Fletcher
LAUREN B. FLETCHER
WILMER CUTLER PICKERING
HALE AND DORR LLP
60 State Street
Boston, MA 02109
(617) 526-6000

CERTIFICATE OF COMPLIANCE

Pursuant to Fed. R. App. P. 32(a)(7)(C), the undersigned hereby certifies that this brief complies with the type-volume limitation of Fed. R. App. P. 32(a)(7)(B) and Circuit Rule 32(b).

1. Exclusive of the exempted portions of the brief, as provided in Fed. R. App. P. 32(a)(7)(B), the brief contains 13,998 words.

2. The brief has been prepared in proportionally spaced typeface using Microsoft Word 2010 in 14 point Times New Roman font. As permitted by Fed. R. App. P. 32(a)(7)(C), the undersigned has relied upon the word count feature of this word processing system in preparing this certificate.

/s/ Lauren B. Fletcher
LAUREN B. FLETCHER
WILMER CUTLER PICKERING
HALE AND DORR LLP
60 State Street
Boston, MA 02109
(617) 526-6000

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